

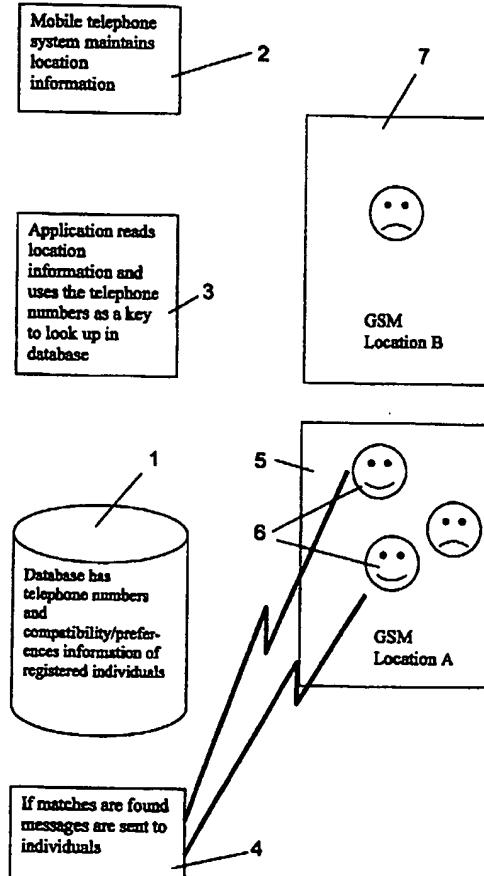
(12) UK Patent Application (19) GB (11) 2 375 921 (13) A

(43) Date of A Publication 27.11.2002

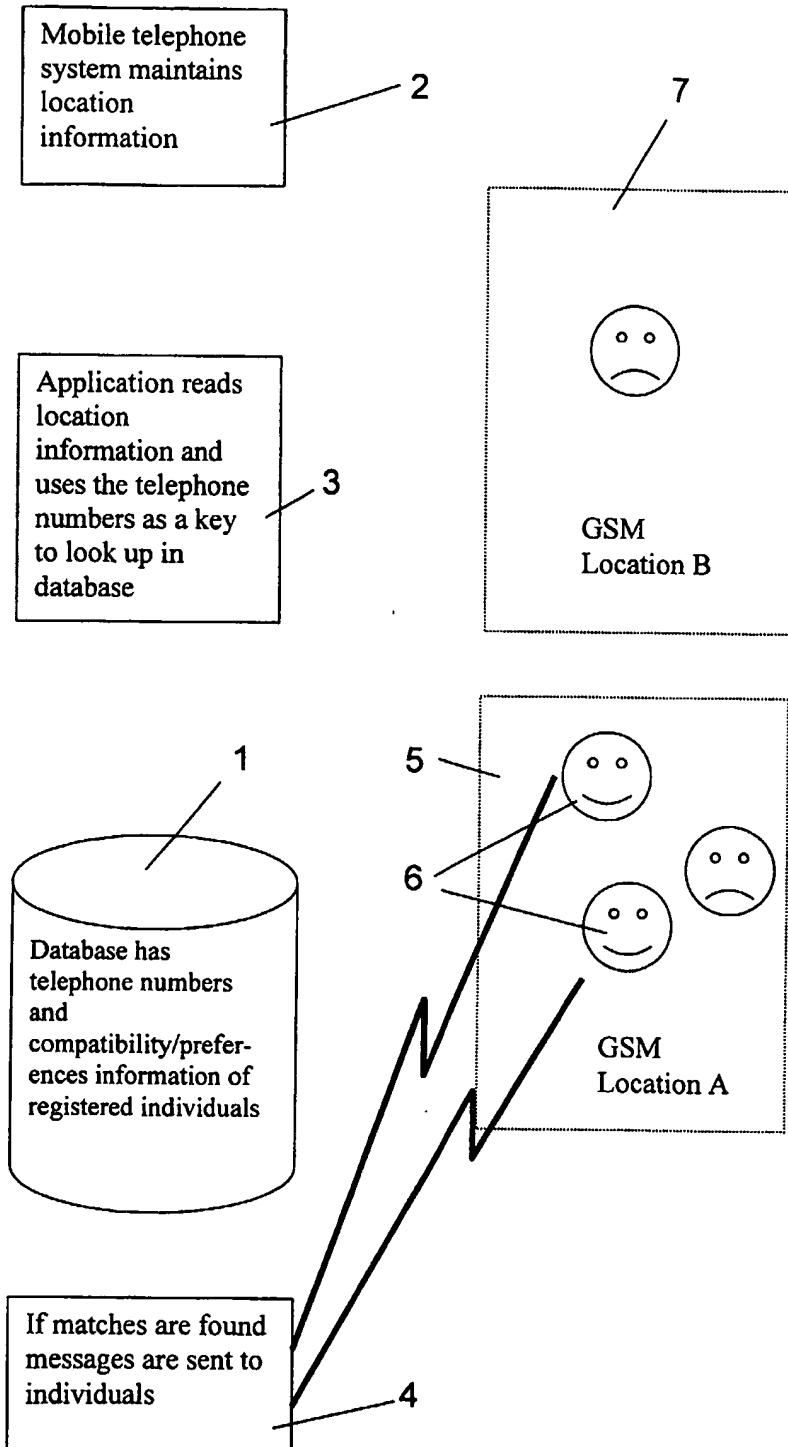
(21) Application No 0112476.7	(51) INT CL7 H04Q 7/22
(22) Date of Filing 23.05.2001	
(71) Applicant(s) Fujitsu Services Limited (Incorporated in the United Kingdom) 26 Finsbury Square, LONDON, EC2A 1SL, United Kingdom	(52) UK CL (Edition T) H4L LDPB L207 L209
(72) Inventor(s) Roy James Bunyan	(56) Documents Cited EP 0795991 A1 WO 2001/015480 A1 WO 2000/019344 A1 WO 1997/016934 A1 WO 1990/013828 A1
(74) Agent and/or Address for Service S M Dupuy International Computers Limited, Cavendish Road, STEVENAGE, Hertfordshire, SG1 2DY, United Kingdom	(58) Field of Search UK CL (Edition T) H4L LDPB LDPC INT CL7 H04Q 7/22 ONLINE: WPI, EPODOC, JAPIO

(54) Abstract Title
Location-based matching service

(57) A location-based service, in particular an introduction/dating service, identifies mobile telephone users (6) that subscribe to the system and are present within a predetermined location area (5) and attempts to match them. The telephone numbers and preferences/requirements of all of the subscribers are stored in a database (1), and the system uses the telephone numbers of the identified subscribers present within the location area to look up their preferences/requirements and then attempts to match them. If matches are found, appropriate messages are sent to the relevant subscribers, who then have the option of requesting further information, including the telephone number of the other subscriber, for setting up meetings etc, or ignoring the match information message altogether. The actual location of the subscribers concerned can be provided to one another based on specific radio cell information resulting from a telephone conversation between them, or alternatively by GPS (Global Positioning System) means.



GB 2 375 921 A



LOCATION-BASED SERVICES

This invention relates to location-based services.

Location-based services are services which are being proposed for use with mobile telephones, WAP phones or the like, and generally act to provide the user of the mobile telephone with information such as the location of the nearest cash machine, restaurant, hotel, garage, emergency services etc. Clearly such services require knowledge of where the user is, in order to determine the appropriate information to send to the user.

Details of where a user is located are required for the operation of a cellular mobile telephone system and thus inherently available in such a system. In the case of a GSM telephone system, the mobile telephones operate within radio cells provided by respective base stations, a group of which cells is referred to as a location area. Whenever a mobile telephone is switched on, and at regular intervals thereafter, it will register with the system and give its location area, this being stored in a register. If during a call the mobile telephone moves out of the range of a particular base station it is handed over to another base station and the call continued. When a call to a mobile telephone is to be made, the mobile telephone must first be found. This is achieved by means of a paging signal which covers the location area in which the mobile telephone is registered. Hence users of mobile telephones are effectively "tracked" by the mobile telephone company to which they subscribe. If the company does not know where a particular mobile telephone is, it can find it.

According to one aspect of the present invention there is provided a system providing a location-based service to mobile telephone users which identifies users subscribing to the service and present within a predetermined location area and attempts to match said subscribing users according to predetermined criteria, including database means for storing information relating to each subscribing user, means to look-up information in the database means for each subscribing user within the predetermined location area, means to determine if there are any matches between the looked-up information for the subscribing users within the predetermined location area, and means to send messages to matched subscribing users advising them of the respective match.

According to another aspect of the present invention there is provided a dating system for mobile telephone users which identifies users subscribing to the system and present within a predetermined location area and attempts to match said subscribing users according to predetermined compatibility criteria, including database means for storing preference information relating to each subscribing user, means to look-up information in the database means for each subscribing user within the predetermined location area, means to determine if there are any matches between the subscribing users whose information is looked up, and means to send messages to matched subscribing users advising them of the respective match.

According to a further aspect of the present invention there is provided a method of introducing mobile telephone users to one another, which users subscribe to a service that aims to match them together in accordance with predetermined criteria, including the steps of:

- (a) storing information relating to each subscribing user in a database together with their telephone number;
- (b) looking up the stored information for each said subscribing user within a predetermined location area;
- (c) determining if there are any matches between the users' looked-up information;
- (d) sending messages to matched subscribing users advising them of the match, and
- (e) issuing the telephone numbers of the matched subscribing users to each other if the subscribing users consent thereto.

Embodiments of the invention will now be described with reference to the accompanying drawing which illustrates, schematically, the structure and operation of a location sensitive dating service according to the present invention.

As discussed above, a mobile telephone company can identify where its subscribers are, and it can thus provide location dependent information to subscribers on request. The company can, in addition, identify which subscribers are in a given location area, and thus, for example, it is possible to inform a number of subscribers within that location area of an "event" taking place in that location area. As will be appreciated the location-based services referred to above are basically concerned with linking users (subscribers) with information. The present invention is, however, basically concerned with linking users (subscribers) present within a particular location area with one another, rather than with information per se, in the manner, for example, of an introduction/dating service. The location sensing attributes of the cellular network are, in particular, used to identify individuals who fulfil some predetermined (pre-defined) compatibility criteria and are positioned within the same GSM location area.

Subscribers of the mobile telephone company would be required to register for such a service and when registering would provide some profile information, for example likes, dislikes etc, in essence the type of information supplied to a dating agency. This information is stored in a preferences database 1 which associates the preferences (profile information) of registered individuals with them or, in particular, with their telephone numbers. The mobile telephone company determines where individuals are and maintains this location information in the usual manner, as indicated at 2, in a register.

Details of how this is achieved are not required for the performance of the present invention and are not given herein. Suffice it to say that persons skilled in the mobile telecommunications field would have no difficulty achieving this.

When a registered individual moves into a particular location area, an application, as indicated at 3, attempts to determine if there are other registered individuals present within that location area with compatible profile information. This is achieved by determining the telephone numbers of the registered individuals within the location area from the register (at 2) and using those numbers as keys to look up information in the database 1, and then determining if any of these individuals have compatible profile information, that is to say if there is a match between them.

If a match is made, then a message, for example an SMS (short message service) text message is sent, as indicated at 4, to all relevant individuals 6 in the location area, such as 5, to alert them that there is a potential dating match within their location area. The recipients 6 may reply and request further details of the matched individuals. This may indicate, for example, that one individual has blue eyes and likes fast cars, whereas another likes sport and is looking for a long-term relationship etc. Up to this point the messaging is simply between the telephone company/service provider and the registered individuals. Once satisfied with the information received, etc, an individual may then request that their telephone number be passed to one of the matched individuals, in other words, the giving of telephone numbers requires consent. Message dialogues may then be opened up directly between consenting individuals in order, for example, to arrange a meeting. When such messaging takes place it is possible to identify individuals down to cell level, rather than the group of cells that form a location area, and so the service provider may, optionally, provide more specific location information at this time.

Since initial contact is via the service provider, there is no contact between individuals, unless such is requested (consented to), and they are not able to determine any information about the other individuals, other than stored in the database, unless all consent to that process. Unsolicited requests can thus be ignored if required.

Whereas the invention has been particularly described with reference to using the telephone system to provide location information, GPS (Global Positioning System) equipment can identify locations more specifically, for example down to a 10 metre area. The use of GPS with the system described above would thus enable more accurate location identification and it could be supplemented with mapping software to show on a screen the location where matched individuals are located.

In summary, an embodiment of the invention provides a dating system which is location sensitive, that is to say subscribers to the dating system are informed when there is a potential match in their current location area. Whilst in the above description the process is triggered by a subscriber entering a particular location area, which might be appropriate to clubs, entertainment or sports areas, alternatively, a subscriber already in a particular location area may request that

the service provider activate the process for him in that location area. Whilst the invention has been described in terms of a dating system, it could alternatively be employed to bring together (introduce to one another) people with common interests, hobbies etc, but who are not interested in dating as such.

CLAIMS

1. A system providing a location-based service to mobile telephone users which identifies users subscribing to the service and present within a predetermined location area and attempts to match said subscribing users according to predetermined criteria, including database means for storing information relating to each subscribing user, means to look-up information in the database means for each subscribing user within the predetermined location area, means to determine if there are any matches between the looked-up information for the subscribing users within the predetermined location area, and means to send messages to matched subscribing users advising them of the respective match.
2. A system as claimed in claim 1, wherein the database means stores the telephone numbers of the subscribing users, and including means whereby in accordance with the wishes of a said subscribing user their telephone number is communicated to a said matched subscribing user.
3. A system as claimed in claim 1 or claim 2, including means to determine the location of a subscribing user within a location area, whereby to facilitate meeting of matched subscribing users.
4. A system as claimed in claim 3, wherein the location determining means employs Global Positioning System (GPS) means.
5. A system as claimed in claim 3 as appendant to claim 2, wherein the location determining means employs specific radio cell information resulting from telephone communications between matched subscribing users.
6. A system as claimed in any one of the preceding claims wherein the messages are short message service (SMS) messages.

7. A dating system for mobile telephone users which identifies users subscribing to the system and present within a predetermined location area and attempts to match said subscribing users according to predetermined compatibility criteria, including database means for storing preference information relating to each subscribing user, means to look-up information in the database means for each subscribing user within the predetermined location area, means to determine if there are any matches between the subscribing users whose information is looked up, and means to send messages to matched subscribing users advising them of the respective match.
8. A method of introducing mobile telephone users to one another, which users subscribe to a service that aims to match them together in accordance with predetermined criteria, including the steps of:
 - (a) storing information relating to each subscribing user in a database together with their telephone number;
 - (b) looking up the stored information for each said subscribing user within a predetermined location area;
 - (c) determining if there are any matches between the users' looked-up information;
 - (d) sending messages to matched subscribing users advising them of the match, and
 - (e) issuing the telephone numbers of the matched subscribing users to each other if the subscribing users consent thereto.
9. A method as claimed in claim 8, further including the step of maintaining a register of location area information for each subscribing user and wherein when a said subscribing user enters a said location area determining the telephone numbers of each said subscribing user within said location area from said register and using the determined telephone numbers as keys to look up the stored information in the database.

10. A method as claimed in claim 8 or claim 9, further including the step of determining the location of a subscribing user within a location area, whereby to facilitate meeting of matched subscribing users.
11. A method as claimed in claim 10, wherein the location is determined by Global Positioning System (GPS) means.
12. A method as claimed in claim 10, wherein the location is determined from telephone communications between matched subscribing users.
13. A dating system for mobile telephone users substantially as herein described with reference to the accompanying drawing.
14. A method of introducing mobile telephone users to one another substantially as herein described with reference to the accompanying drawing.



Application No: GB 0112476.7
Claims searched: all

Examiner: Nigel Hall
Date of search: 9 January 2002

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.T): LDPB, LDPC

Int Cl (Ed.7): H04Q7/22

Other: Online: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X, Y	WO 01/15480 A1 (NOKIA) See whole document	1-5, 7-11
X, Y	WO 90/13828 A1 (WILVERLEY) See whole document	1-3, 5, 7-10
Y	EP 0795991 A1 (HEWLETT PACKARD) See description <i>passim</i>	6
Y	WO 97/16934 A1 (JARLAB) See description <i>passim</i> .	6
A	WO 00/19344 A1 (GUTERMAN)	

- | | | | |
|---|---|---|--|
| X | Document indicating lack of novelty or inventive step | A | Document indicating technological background and/or state of the art. |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category. | P | Document published on or after the declared priority date but before the filing date of this invention. |
| & | Member of the same patent family | E | Patent document published on or after, but with priority date earlier than, the filing date of this application. |